Figure 1 (The Basic Invention Used in a Conveyor Application)
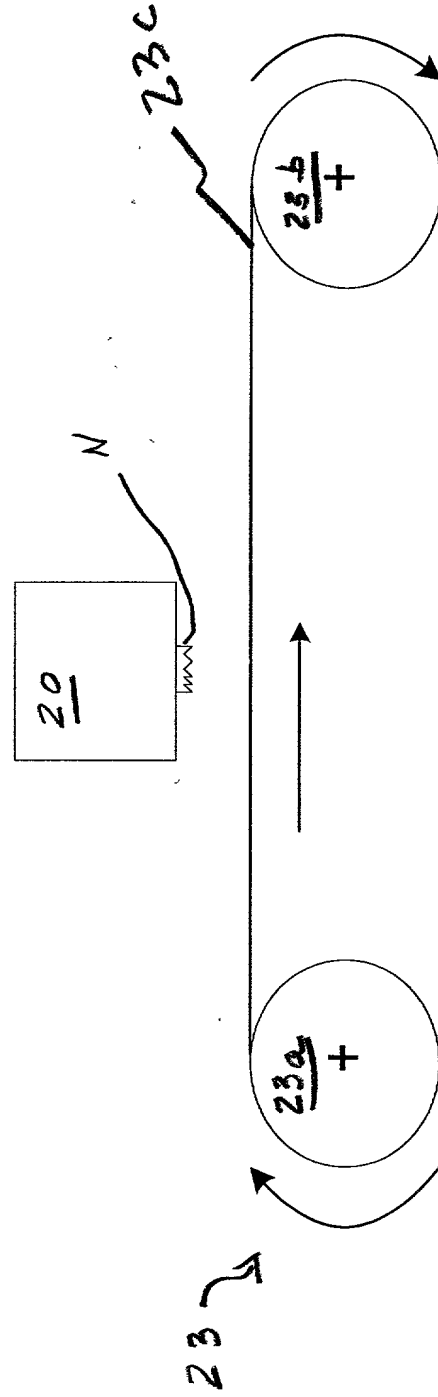
Figure 2 (The Basic Invention Used in a Continuous Web Application)

P3

P2

P1
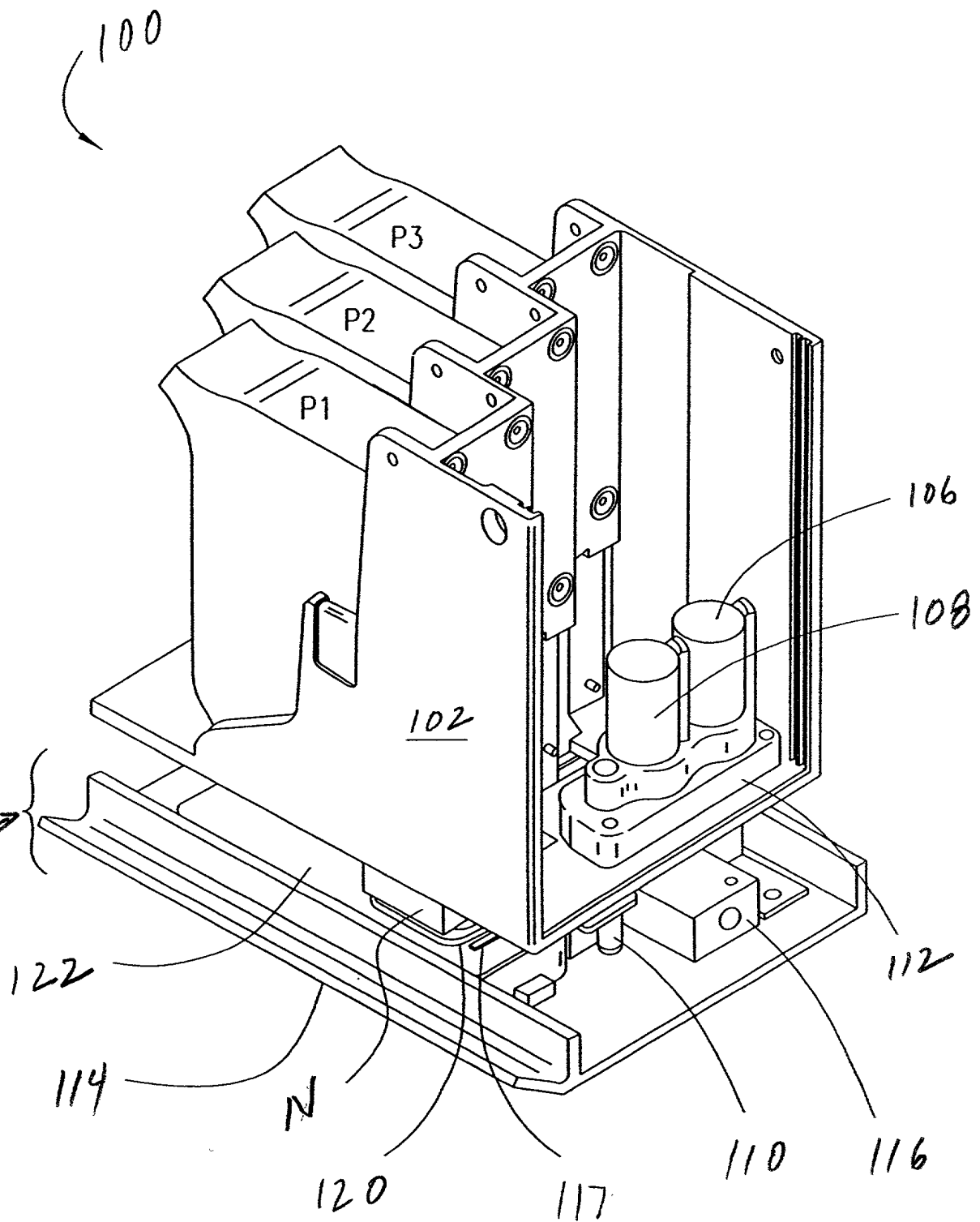
100

106

108

102

112

110

116

104.2

122

114

N

120

117

FIG. 3

200

208

208a

206

205a

203 {

205

207

211
213 } 209

212

202

201a

222

223

220

238

218

217

210

210a

214

234

230

232

310

204

Figure 4 (Power Transmission Path
for Cartridge Vertical Motion)

200

P1 P2 P3

208

202

222

220

217

238

223

218

201b

204

236

310

214

205 207

211 ~209

213

201b

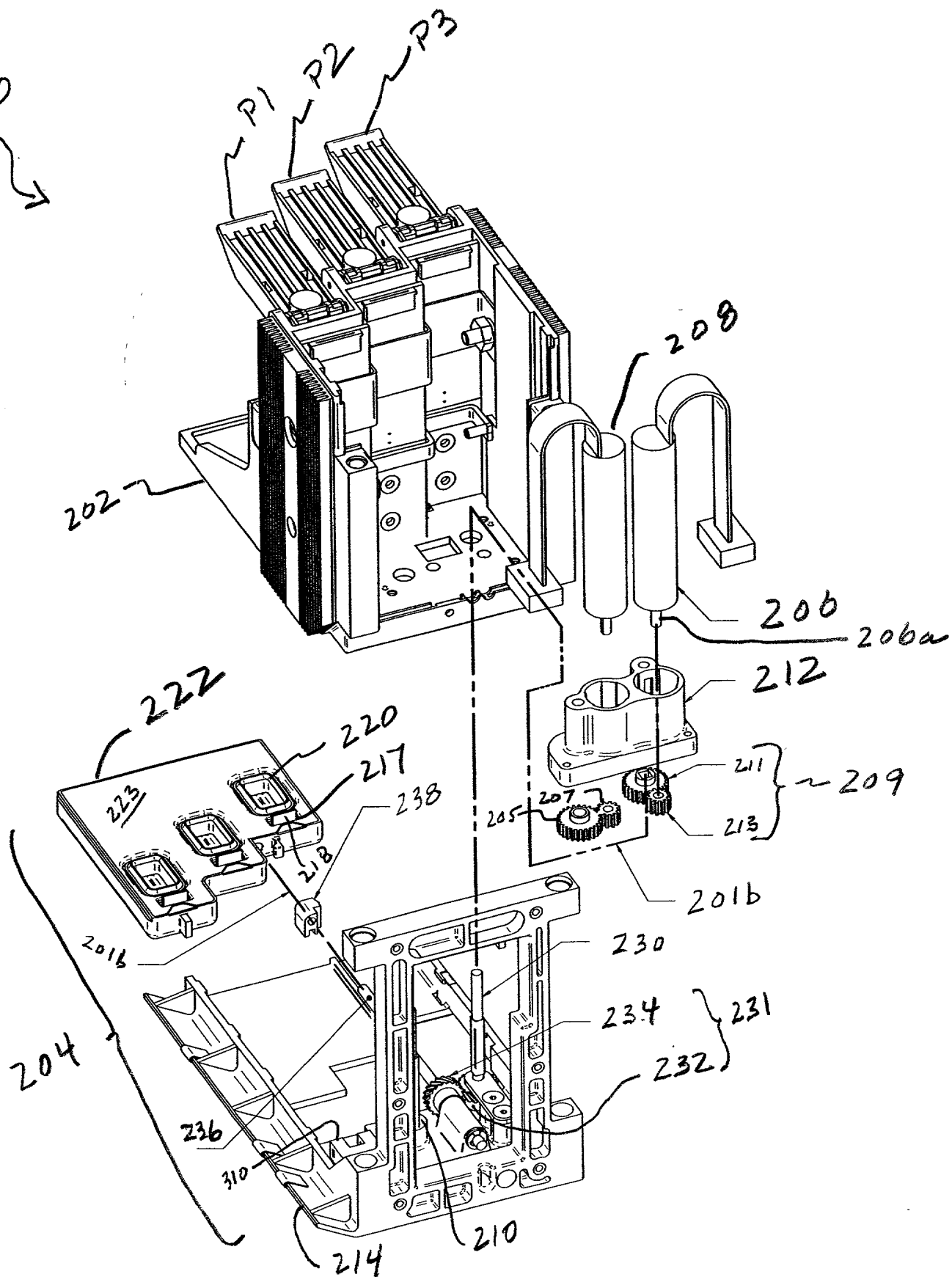230

234 231

232

210

206a

200

212

Figure 5 (Power Transmission Path
for Waste Ink Receptacle Horizontal Motion)

205

211

207

213

212

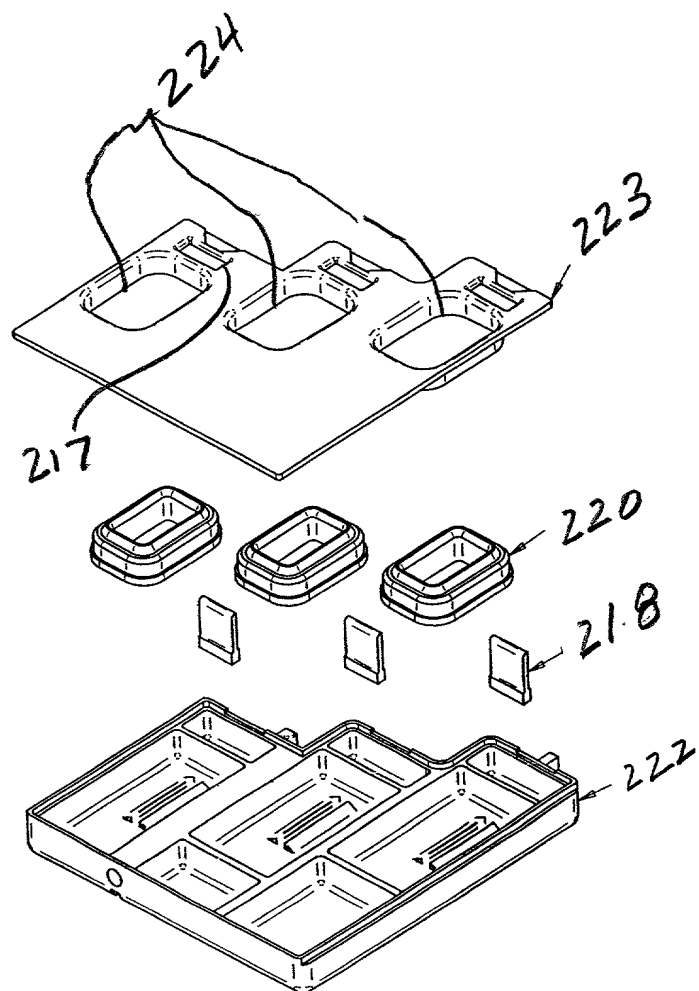206

208
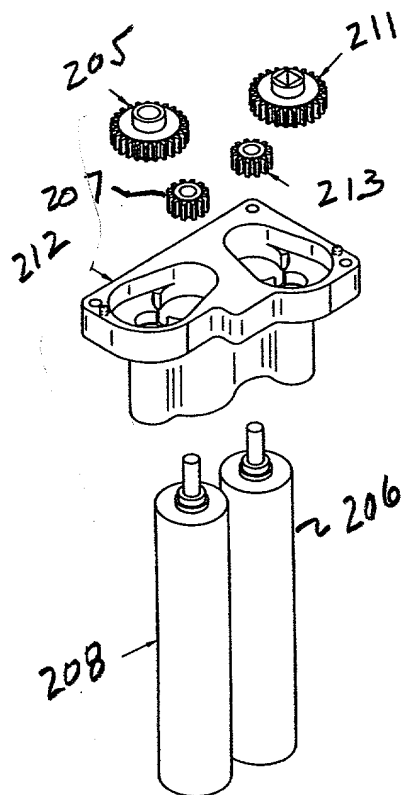
Figure 6 (Motor, Housing
and Gear Assembly)

224

223

217

220

218

222

Figure 7 (Ink Receptacle Assembly)

300

302

316

HOST RS 232

amd186em
processor

308

enc

306

enc

310

Horizontal
Home
Sensor

Vertical motor

208

312

Vertical
Home
Sensor

206

Horizontal motor

Cleaning Station
Processor

Motor Control
Interface

Paper
Sensor
Trigger

304

314
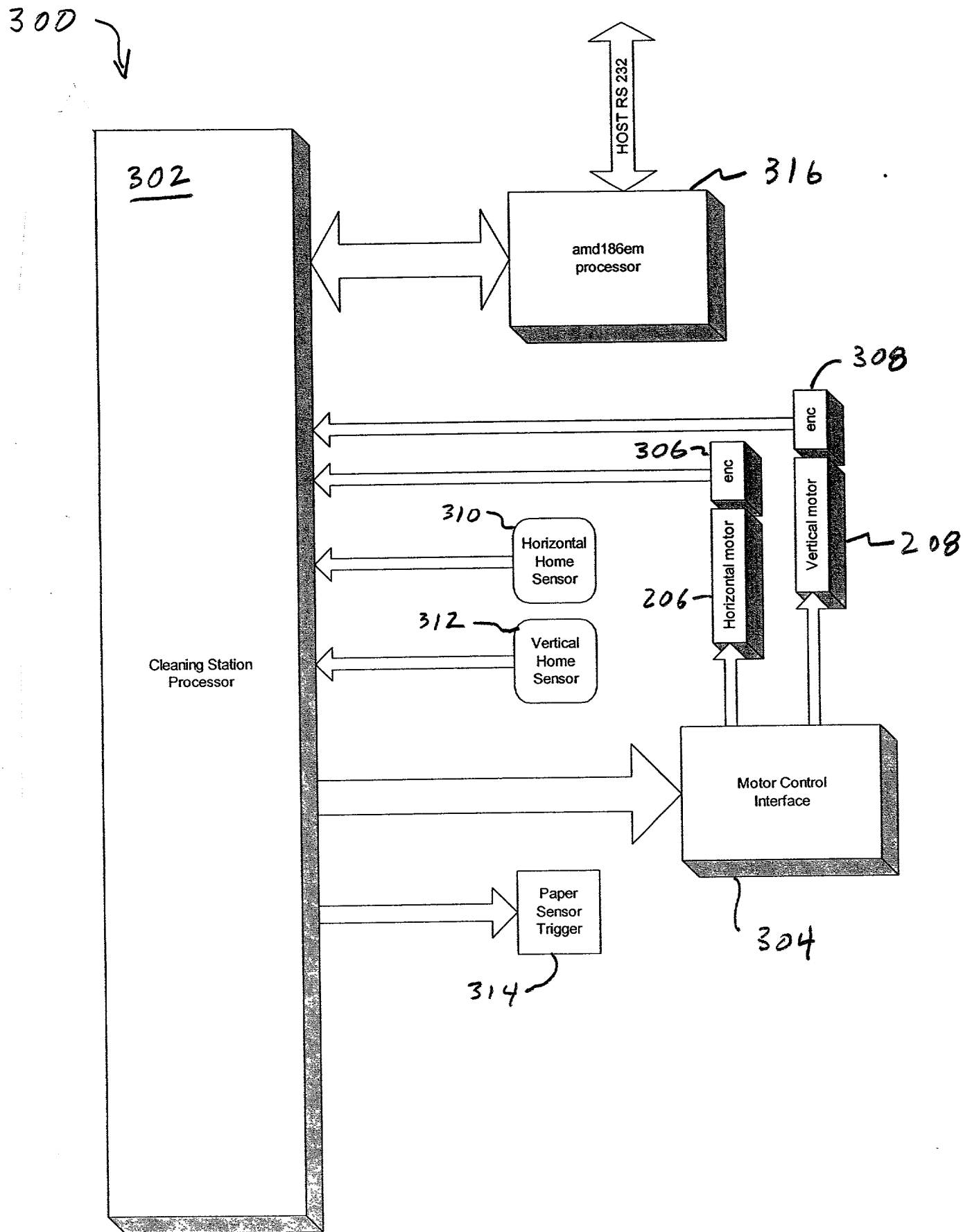
Figure 8 (Cleaning Station Control Assembly)

350

Production

Print	
Park	These commands
Clean	are used in normal
Remove Tray	operation and can be

352

354

356

358

These commands
are used in normal
operation and can be
issued at any time
desired.

Figure 9 (Cleaning Station Commands)

370

Fig. 10A Print

P1

PEN

120, 220

118, 218

122, 222

Seal | Tray | Wiper

N

380

Fig. 10B Park

P1

PEN

N

118, 218

122, 222

Seal | Tray | Wiper

120, 220

390

Fig. 10C Remove Tray

120, 220

P1

PEN

Seal | Tray | Wiper

118, 218

122, 222

N
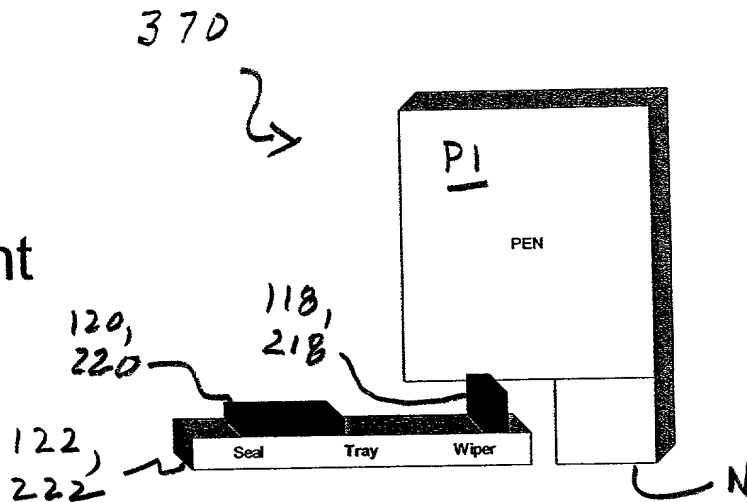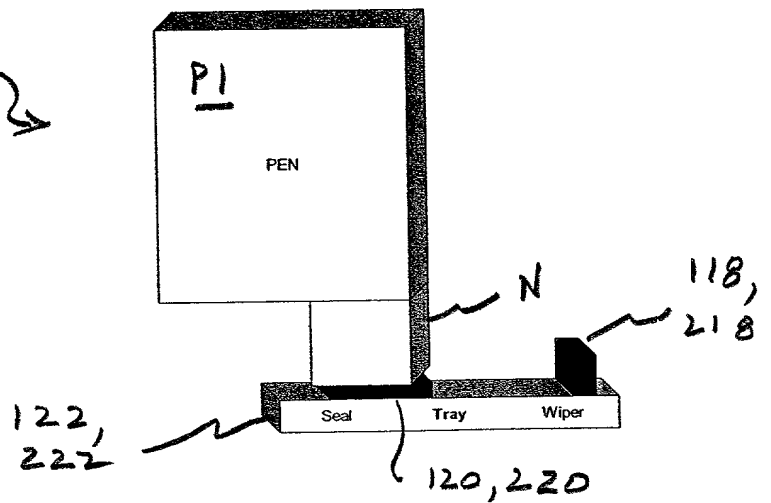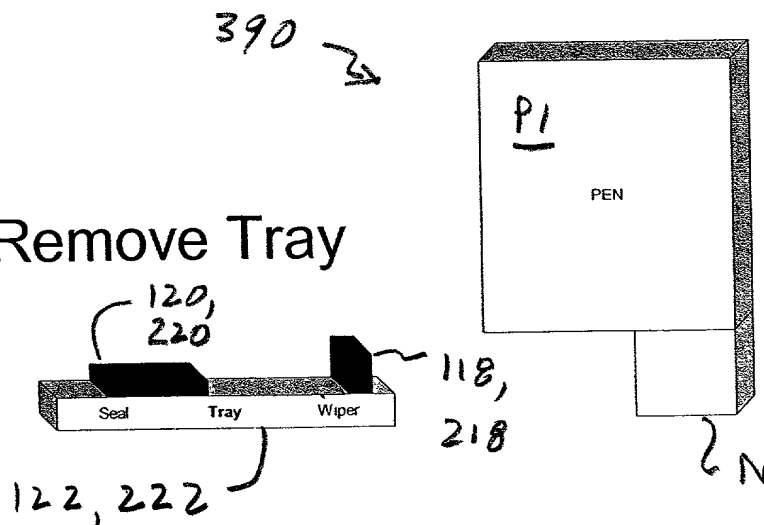
Figure 10 (Print, Park and Remove Tray Positions)

400
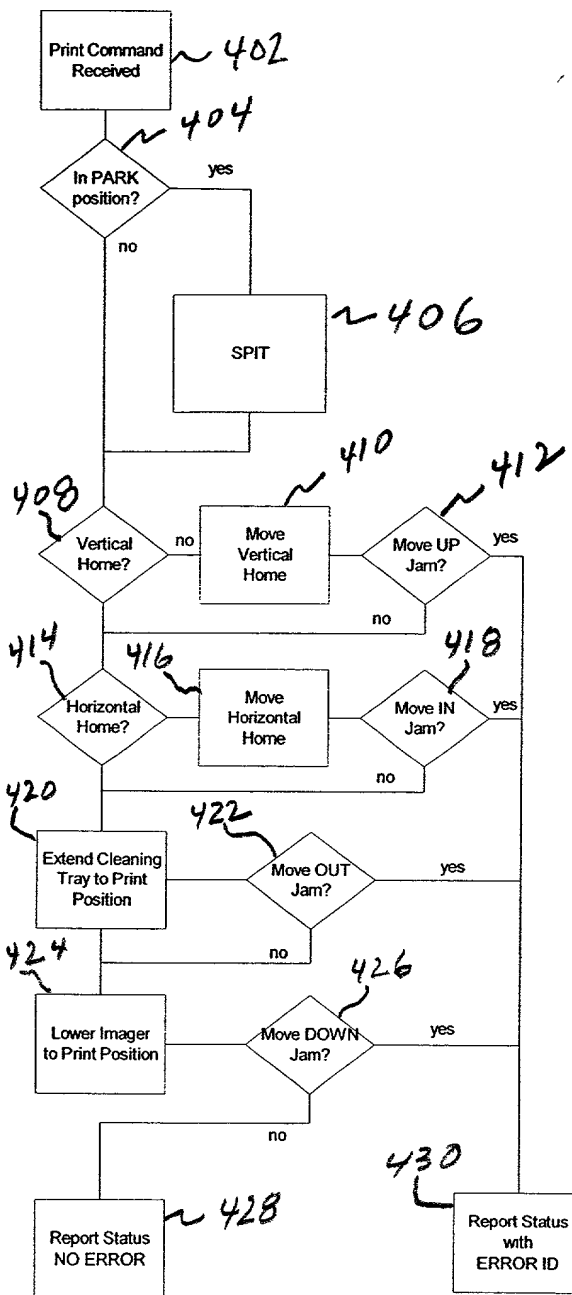
Figure 11 (Print Cycle Flowchart)

500

502 Park Command Received

504 Vertical Home? — no → 504a Move Vertical Home → 504b Move UP Jam? — yes →
no →

506 Horizontal Home? — no → 506a Move Horizontal Home → 506b Move IN Jam? — yes →
no →

508 Lower Printer to Spit Position — 508a Move Down Jam? — yes →
no →

510 SPIT

512 Move Vertical Home — 512a Move UP Jam? — yes →
no →

514 Lower Printer to Cap Position — 514a Move Down Jam? — yes →
no →

516 Report Status NO ERROR

518 Report Status with ERROR ID
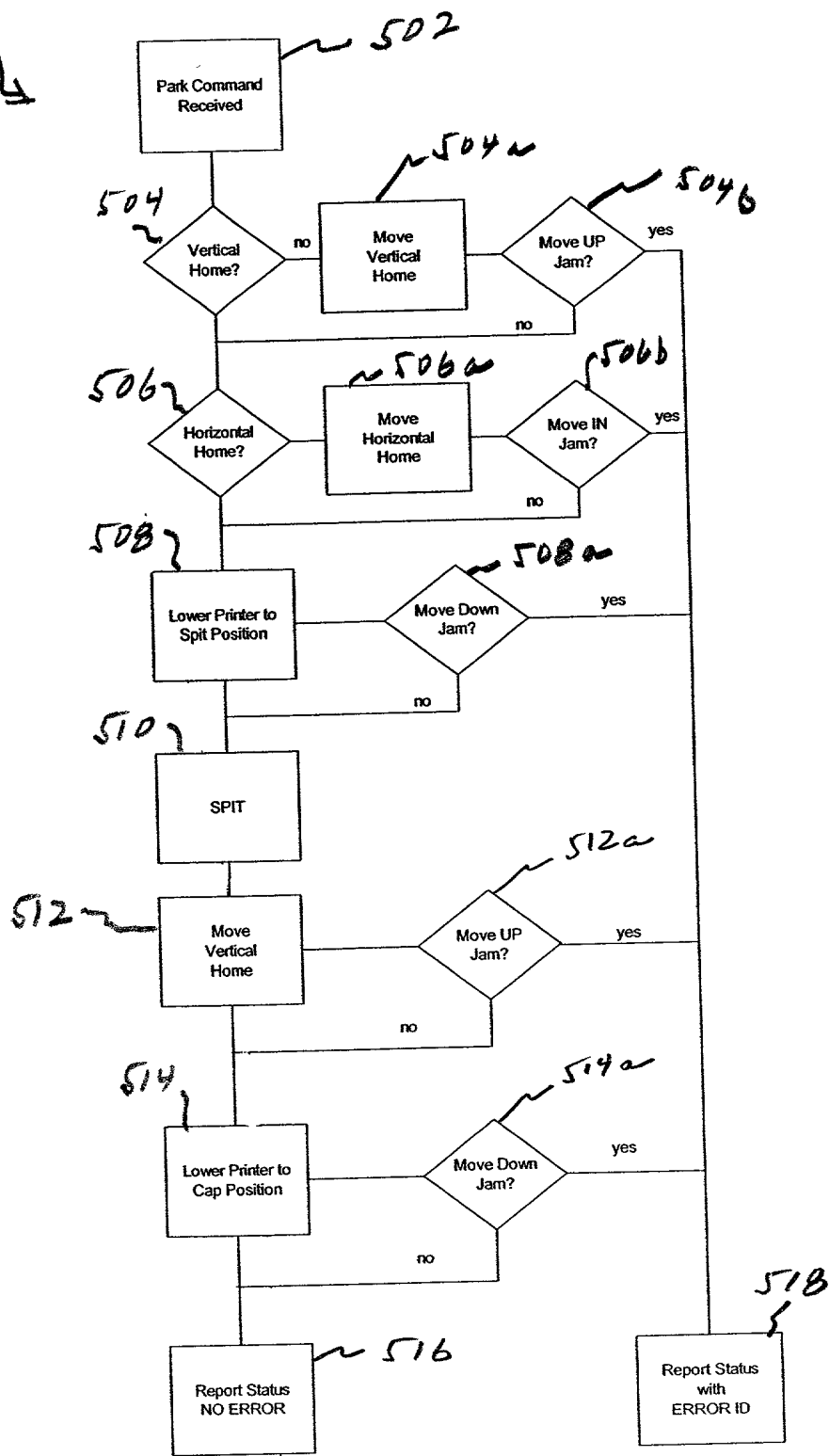
Figure 12 (Park Cycle Flowchart)

Cleaning Cycle

Fig. 13A Start

530

P1 PEN — Park

N

120, 220

118, 218

122, 222

Fig. 13A'

540

Print — P1 PEN

120, 220

N

118, 218'

122, 222

Fig. 13B Spit

550

P1 PEN

N

120, 220'

118, 218

Seal Tray Wipe

122, 222

Fig. 13C Wipe

560

P1 PEN

N

120, 220'

Moving In

118, 218'

Seal Tray Wipe

122, 222

Fig. 13D Wick

570

P1 PEN

120, 220

N

118, 218

Moving Out

Seal Tray Wipe

122, 222

218a

218'

218b

Wick   Wipe
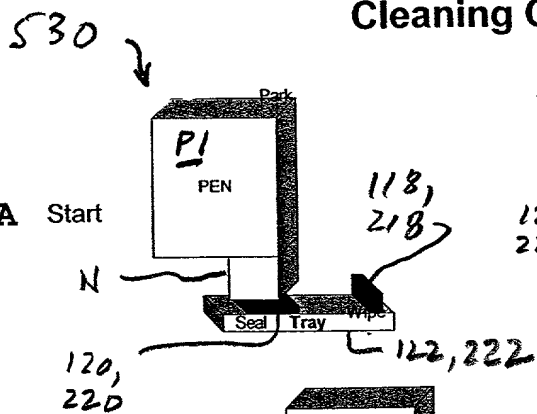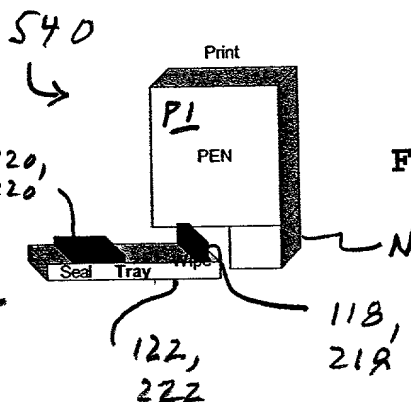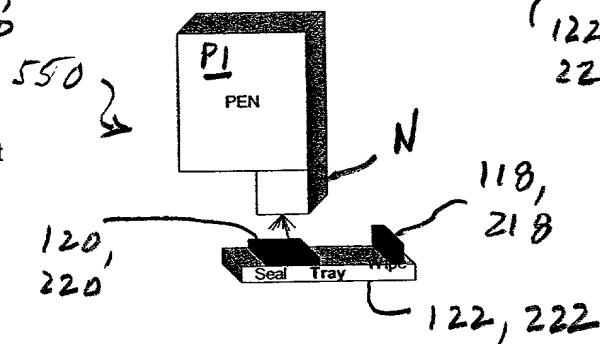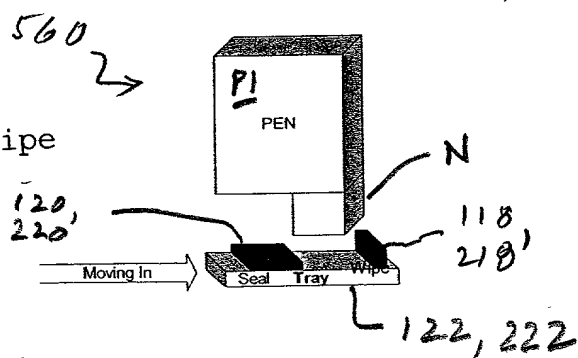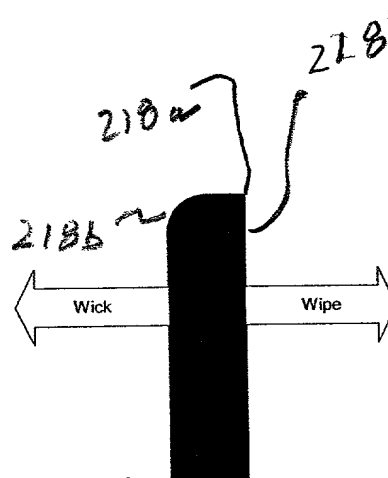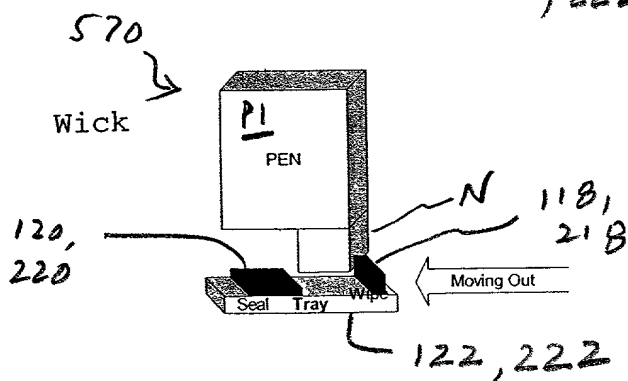
Figure 14 (Wiper

Figure 13 (Cleaning Cycle Positions)

600

Left column:

- 602 — Clean Command Received
- 604 — Vertical Home? — no → 606 Move Vertical Home → 608 Move UP Jam? — yes / no
- 610 — Horizontal Home? — no → 612 Move Horizontal Home → 614 Move IN Jam? — yes / no
- 616 — Lower Printer to Spit Position → 618 Move Down Jam? — yes / no
- 620 — SPIT
- Move Vertical Home → 622 / 624 Move UP Jam? — yes / no
- 626 — Lower Printer to Wick Position → 628 Move Down Jam? — yes / no

Right column:

(Clean cycle continued)

- 630 — Extend Cleaning Tray to Wipe Position → 632 Move OUT Jam? — yes / no
- 634 — Move Vertical Home → 636 Move UP Jam? — yes / no
- 638 — Lower Printer to Wipe Position → 640 Move Down Jam? — yes / no
- 642 — Move Horizontal Home → 644 Move IN Jam? — yes / no
- 646 — Lower Imager Below Home Sensor → 648 Move Down JAM — yes / no
- 650 — Move Vertical Home → 652 Move UP JAM? — yes / no
- 654 — Move Down to Cap Position → 656 Move DOWN JAM? — yes / no
- 658 — Report Status NO ERROR
- 660 — Report Status with ERROR ID

Figure 15 (Cleaning Cycle Flowchart)

700

702

Remove Tray
Command
Received

704

Vertical
Home?

706

Move
Vertical
Home

708

Move UP
Jam?

no

yes

no

710

Horizontal
Home?

712

Move
Horizontal
Home

714

Move IN
Jam?

yes

no

716

Extend Cleaning
Tray to Remove
Position

718

Move OUT
Jam?

yes

no

Note: host should verify
that user has replaced the
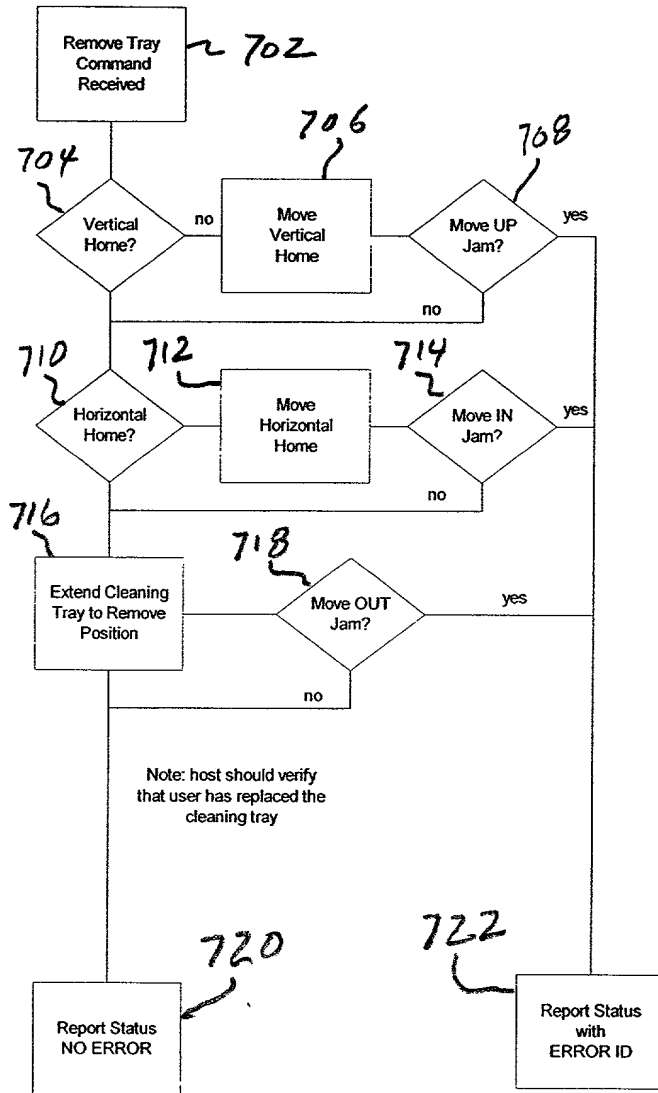cleaning tray

720

Report Status
NO ERROR

722

Report Status
with
ERROR ID

Figure 16 (Remove Tray Cycle Flowchart)